A WINDOW ON THE VIEWS OF OHIO ALGEBRA TEACHERS: REACTIONS TO THE NCTM'S PROPOSED STANDARD

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A recent survey of 30 algebra teachers showed agreement with many but not all parts of the proposed National Council of Teachers of Mathematics (NCTM) standard for high school algebra.

The sample from Columbiana, Franklin, and Holmes Counties included 11 teachers from city schools, 11 from suburban, and 8 from rural schools. Only 11 schools were represented, but an attempt was made to include all algebra teachers in each school visited.

Data were obtained from interviews which took place in March and April, 1989. Since the survey was started before the publication of the revised standard, the Working Draft was used.

When asked to agree or disagree with specific items in the standard for algebra, teachers agreed as follows: 53% to reduced attention to simplification of radicals, 53% to reduced attention to accurate paper-and-pencil graphing of equations by point plotting, and 87% to reduced attention to logarithm calculations. Eighty-seven percent agreed to increased attention to close ties between realistic applications and theory, 73% to increased attention to computer graphing to support algebraic concepts, 63% to increased attention to computer-based methods for solving equations, 63% to increased attention to the fundamental properties of the real number system, and 63% to increased attention to matrices.

Teachers disagreed with the following items: 67% to reduced attention to word problems by type, 73% to reduced attention to solving equations and simplifying rational expressions by factoring, and 67% to reduced attention to arithmetic of rational expressions.

Reasons for disagreement were beliefs that students need these topics for later mathematics in high school and college, that word problems are the important applications of algebra, and a concern that to reduce attention to these topics would

result in their complete elimination from the curriculum.

Also 50% of the teachers disagreed with the statement that this curriculum should move from a tight focus on manipulative facility to include a greater emphasis on conceptual understanding. Since there was some indecision, only 47% of the teachers agreed with this statement. Reasons for disagreement were that skills and concepts are equally important, and one should not be emphasized above the other.

Eighty-seven percent of the teachers said they understood the algebra standard, 66% said change is important, 57% said the standard is realistic and attainable for themselves and their students, 67% said their present program did not match the standard, and 73% said they would feel comfortable teaching with the standard if it were adopted. Twenty-seven percent said they use calculators and 33% use computers in teaching algebra.

When asked what barriers they could see to implementing the algebra standard, the teachers most often cited lack of equipment. This primarily meant lack of computers but also included lack of calculators, textbooks, and software. Lack of teachers trained in computer methods and poorly prepared students ranked next, then lack of time. Forty percent of the teachers expressed a need for inservice training. Poorly prepared students meant those lacking the necessary background and motivation in mathematics and computers. Lack of time meant a concern there would not be time enough to teach students to use computers and develop the needed teaching materials in addition to teaching all the necessary algebra.

The sample consisted of 14 men and 16 women. Teaching experience ranged from 1 to 30 years with a mean of 15 years. Fifty-seven percent reported NCTM or OCTM membership while 77% said they read NCTM publications. Only 27% claimed to have seen the standard before the interview.

How do the opinions of the algebra teachers in your school compare? Are the views of this sample representative of Ohio algebra teachers?

Reference

National Council of Teachers of Mathematics, Commission on Standards for School Mathematics. (1987). Curriculum and evaluation standards for school mathematics: Working draft. Reston, VA: NCTM.